spicata γ *racemosa* DC. (1836) is included in the synonymy of *L. graminifolia* (Walt.) Willd., var. *dubia* (Barton) Gray (1848). Although Gaiser does not mention DeCandolle's variety in her discussion of the types of the various components of *L. graminifolia*, she does include it in the list of unquestioned synonyms. Since DeCandolle's variety antedates Gray's by twelve years, it would seem that a transfer is necessary, namely:

LIATRIS GRAMINIFOLIA (Walt.) Willd., var. **racemosa** (DC.), comb. nov., based on *Liatris spicata* γ *racemosa* DC. Prodr. **5:** 130. 1836.—HASKELL VENARD, Atlanta, Georgia.

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY—NO. CLXIX

PART I. SOME IDENTITIES IN BREWERIA

M. L. FERNALD AND BERNICE G. SCHUBERT

(Plates 1121–1129)[1]

Disturbed by the fact that *Breweria Pickeringii* (Torr.) Gray rests upon a plant from southeastern North Carolina (Wilmington) which was originally described as having the central flower of each "aggregate" inflorescence sessile, whereas the plants of southern New Jersey, western Illinois and adjacent Iowa, and the Oklahoma-Texas region have them pedicelled, the senior author has borrowed from several of the larger American herbaria all the material which has passed as *B. Pickeringii*. The present notes summarize the results of our study of the assembled material from these strikingly disjunct areas and another region not generally included in the stated range. Before entering upon discussion of that species, however, it is important to clear the identities of some earlier described species in order that any references to them may not be misleading.

BREWERIA AQUATICA (Walt.) Gray, Syn. Fl. N. Am. ii[1]. 217 (1878), rests nomenclaturally on *Convolvulus aquaticus* Walt. Fl. Carol. 94 (1788), our PLATE 1121, FIG. 1. It has also been called *Stylisma aquatica* (Walt.) Chapm. Fl. So. U. S. 346 (1860) and *Bonamia aquatica* (Walt.) Gray, Man. ed. 5: 376 (1867).

[1] The cost of engraving met through aid from Mr. BAYARD LONG.

In all Gray's work, as summarized in the Synoptical Flora, he treated *Breweria aquatica* as a catch-all to include all plants of temperate North America in the subgenus *Stylisma* which he did not merge with the very different *B. humistrata* (Walt.) Gray and *B. Pickeringii* (Torr.) Gray. Under *B. humistrata* (our PLATE 1122) he placed the strikingly dissimilar *Convolvulus patens* Desr. (PLATE 1121, FIG. 2) and *C. trichosanthes* Michx. (PLATE 1123), while some specimens labelled by him as *B. humistrata* are of the very distinct *B. angustifolia* Nash (PLATE 1124). Nowadays, however, the name *Breweria aquatica* is generally applied to a plant with style cleft half way to base or still lower, filaments essentially glabrous, flowers mostly 3 in small corymbs, with the short bracts close to the base of the corymb, the pedicels and calyx densely villous (PLATE 1123), a plant which, we shall see, is quite unlike Walter's type. The name *C. trichosanthes* Michaux, as applied by Small, covers a plant very unlike Michaux's type (PLATE 1123, FIG. 1), for Small had a very slender plant, usually with narrower leaves, the solitary flowers long-stalked above the remote bracts, the calyx minutely tomentulose, the filaments villous (PLATE 1121).

It is evident that the types of Walter's *Convolvulus aquaticus*, Michaux's *C. trichosanthes*, Torrey's *C. Pickeringii* and some other types have entered only vaguely into recent interpretations. Walter's *C. aquaticus* was more fully described by him than many of his species:

> *aquaticus* 9. caule tereti prostrato; foliis, petiolis brevibus, oblongis, nervo acuminatis, pubescentibus, alternis; pedunculis axillaribus, unifloris, folia aequantibus; bracteis duabus subulatis; calyce pentaphyllo tomentoso; floribus brevibus, rubro-purpureis, tomentosis; stylo bipartito, capsula villosa.

Fortunately the Fraser scrap-book of fragments of Walter's plants contains definitely a "scrap" of *Convolvulus aquaticus*, no. 231 on p. 36 (our PLATE 1121, FIG. 1, × ½). This, so far as it goes, is identical with *C. patens* Desr. in Lam. Encycl. iii. 547 (1789), a portion of the TYPE of which is shown, × 1, in PLATE 1121, FIG. 2. This type-sheet had previously been shown by

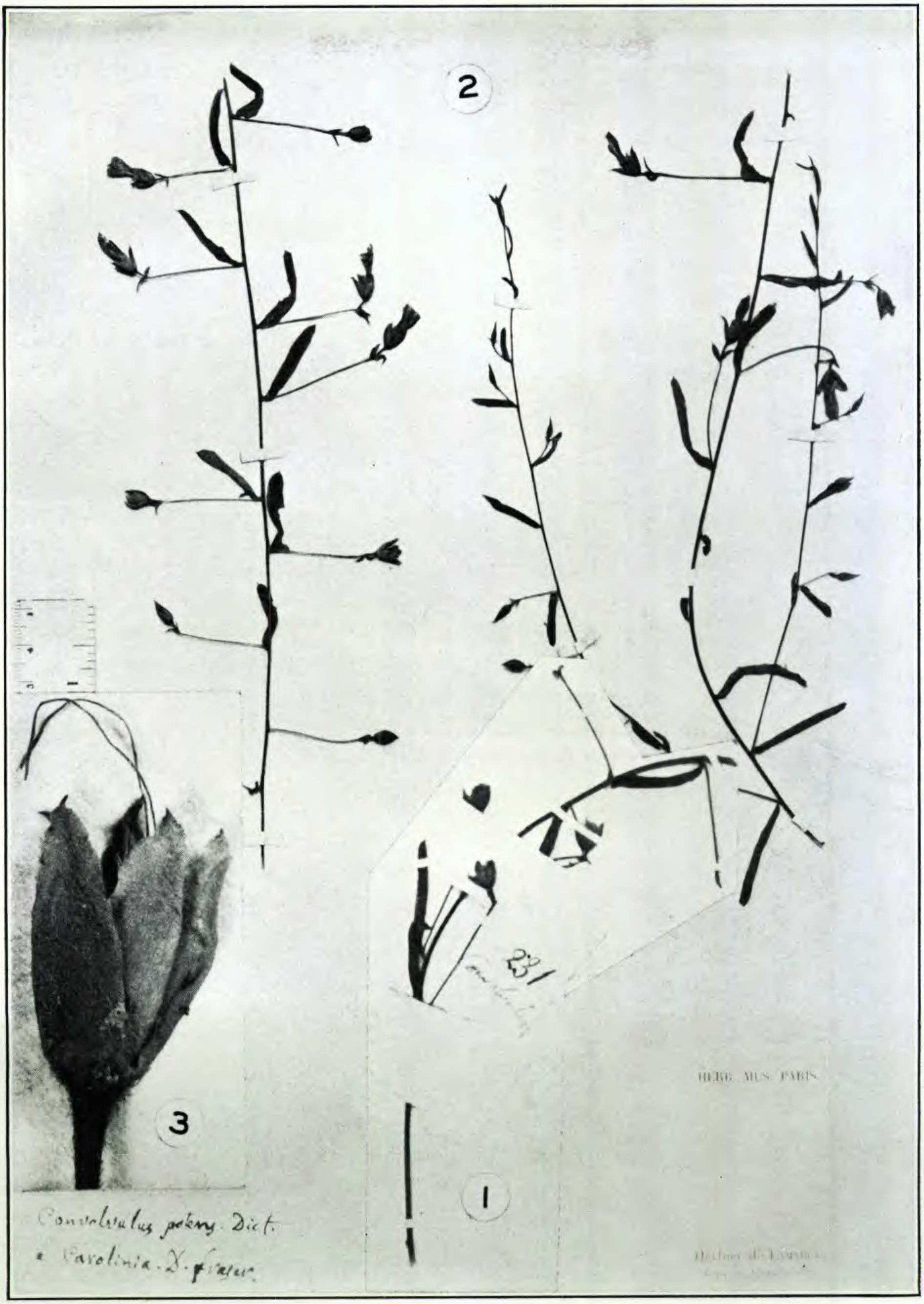

Photo. B. G. Schubert

BREWERIA AQUATICA: FIG. 1, TYPE of CONVOLVULUS AQUATICUS Walt., × ½; FIG. 2, TYPE of *Convolvulus patens* Desr., × ½; FIG. 3, calyx and style, × 5, from southwest of Hinesville, Liberty Co., Georgia, *Wiegand & Manning*, no. 2632.

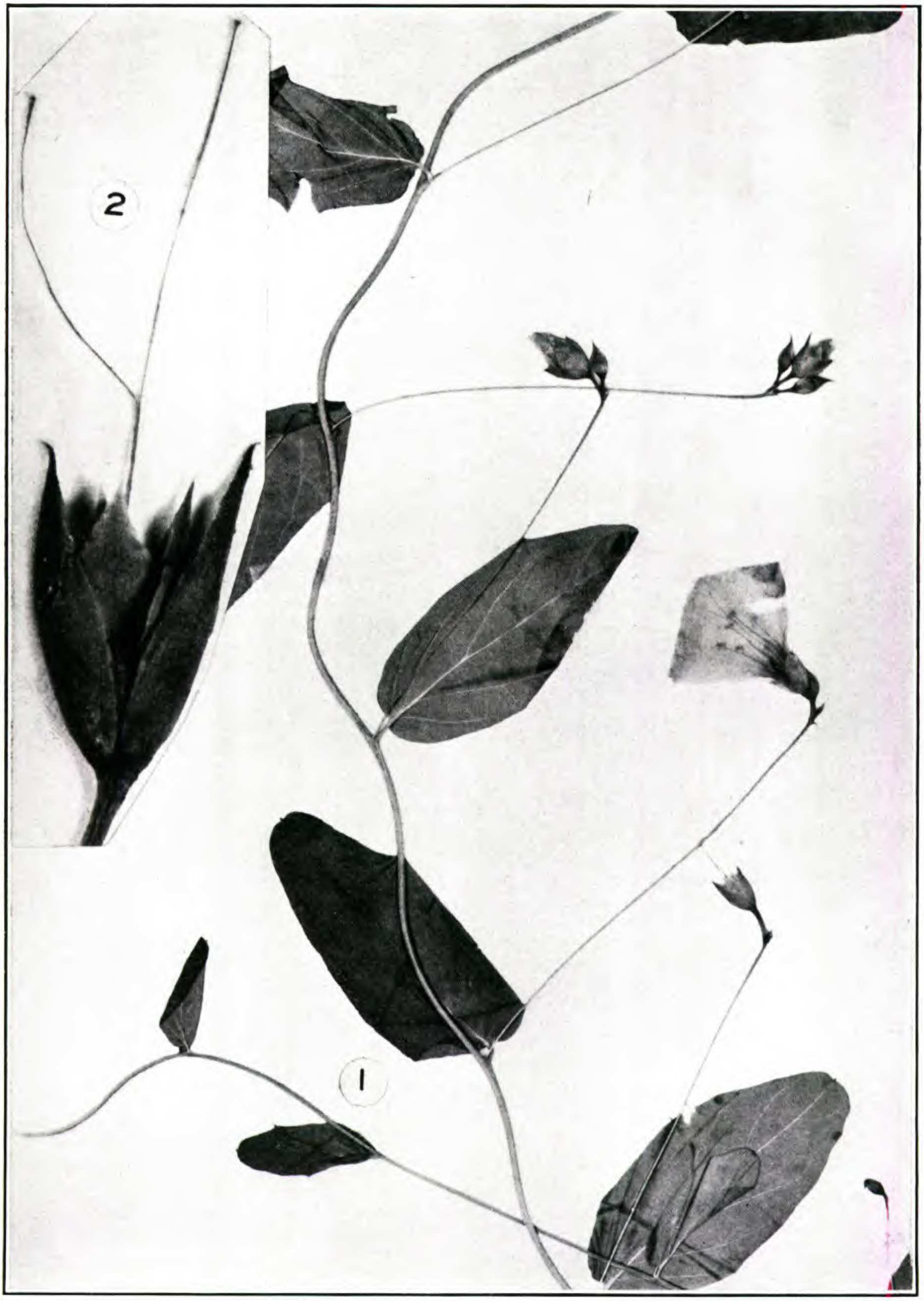

Photo. B. G. Schubert

BREWERIA HUMISTRATA: FIG. 1, portion of flowering branch, × 1, from Pee Dee near Mars Bluff Bridge, Florence County, South Carolina, *Wiegand & Manning*, no. 2635; FIG. 2, calyx and style, × 5, from east of Cahoon Pond, northwest of Suffolk, Virginia, *Fernald & Long*, no. 13,429.

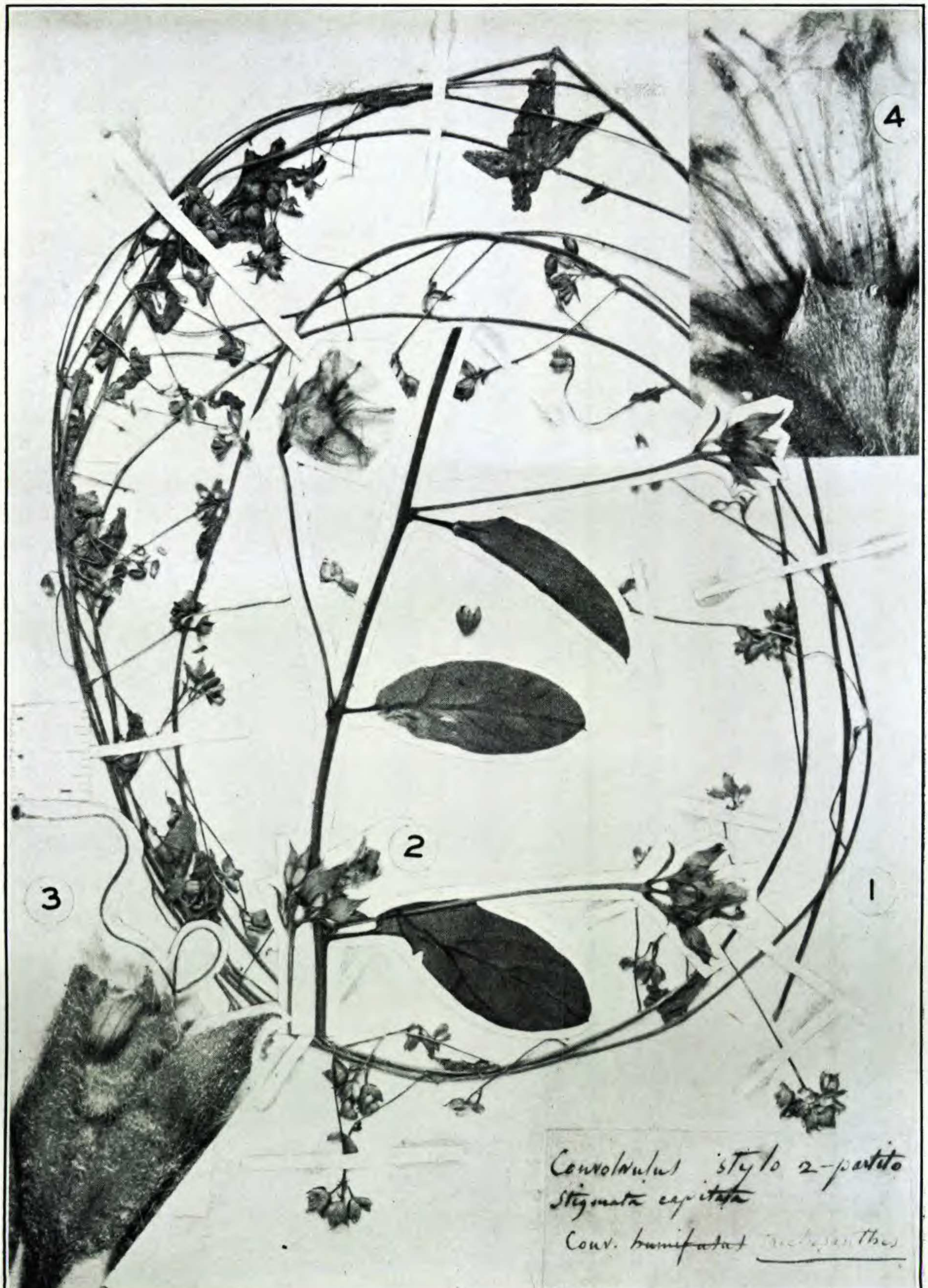

Photo. B. G. Schubert

BREWERIA MICHAUXII: FIG. 1, TYPE, also TYPE of CONVOLVULUS TRICHOSANTHES Michx., × ½, after *Cintract;* FIG. 2, portion of flowering branch, × 1, of "*B. aquatica*" of most auth. from Miami, Florida, *Curtiss*, no. 5855; FIG. 3, calyx and style, × 5, from Punta Rassa, Florida, *Tracy*, no. 7719; FIG. 4, portion of flower, × 5, to show long style-branches, from Miami, Florida, *Curtiss*, no. 5855.

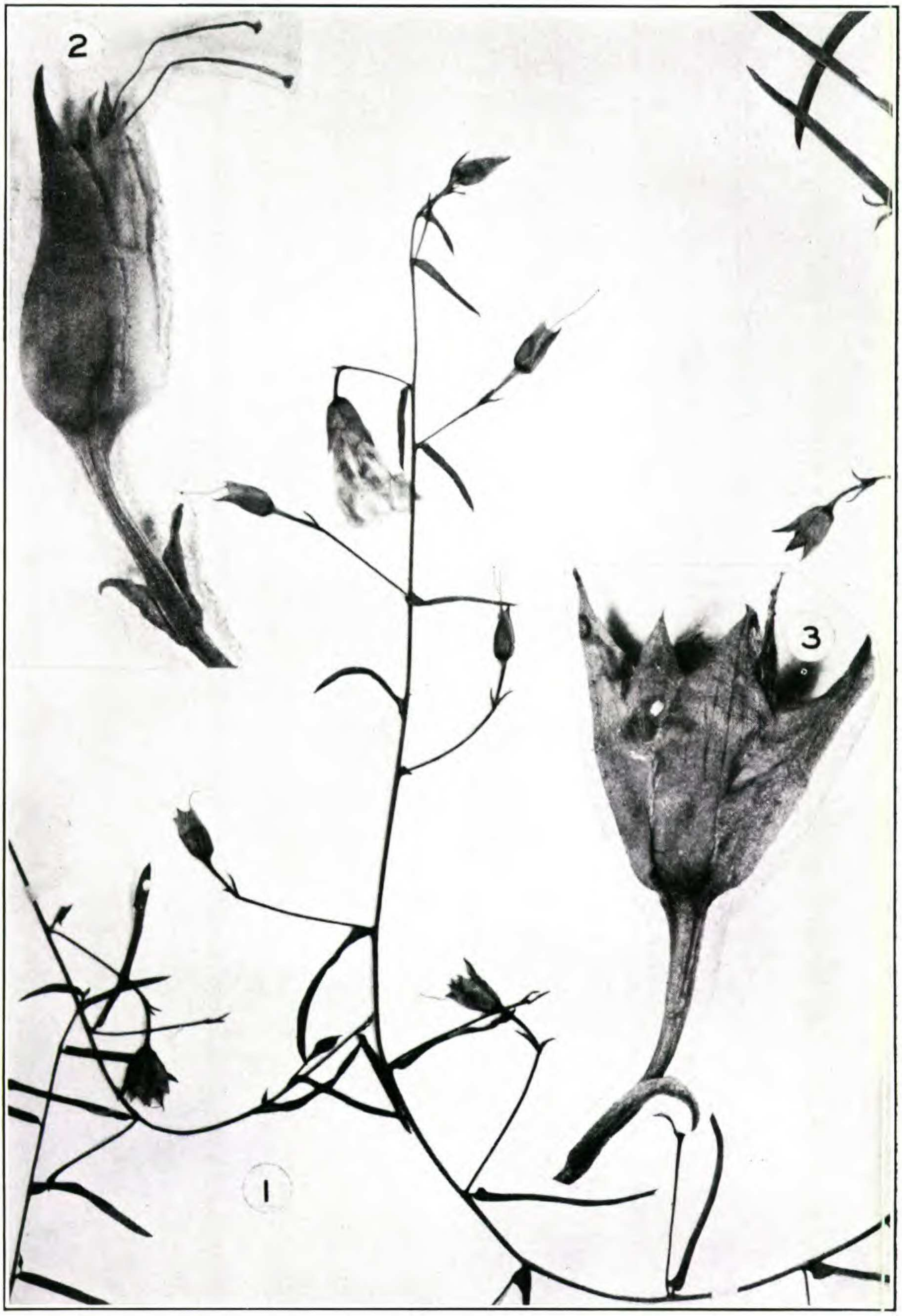

Photo. B. G. Schubert

BREWERIA ANGUSTIFOLIA: FIG. 1, portion of plant, ×1, from Dixon, Onslow County, North Carolina, *L. F. & Fannie R. Randolph*, no. 962; FIG. 2, calyx and summits of style, × 5, from near McClellanville, Charleston County, South Carolina, *Godfrey & Tryon*, no. 176, as *B. patens;* FIG. 3, fruiting calyx, × 5, from no. 962.

Fernald in RHODORA, xlii. t. 624, fig. 1 (1940). Walter's fragmentary type and the fuller one of Desrousseaux are readily matched by many specimens from the southeastern United States, such as *Wiegand & Manning*, no. 2632 from Liberty County, Georgia, our FIG. 3, this, like many other similar collections, distributed as *Breweria trichosanthes* sensu Small. We are, somewhat inconveniently, forced to make the following change:

BREWERIA AQUATICA (Walt.) Gray, Syn. Fl. N. Am. ii[1]. 217 (1878), as to basonym only. *Convolvulus aquaticus* Walt. Fl. Carol. 94 (1788). *Conv. patens* Desr. in Lam. Encycl. iii. 547 (1789). *Stylisma aquatica* (Walt.) Chapm. Fl. So. U. S. 346 (1860), as to basonym only. *Bonamia aquatica* (Walt.) Gray, Man. ed. 5: 376 (1867), as to basonym only. *Breweria trichosanthes* sensu Small, Fl. Se. U. S. 959 (1903), not *Conv. trichosanthes* Michx., basonym. *Stylisma trichosanthes* sensu House in Bull. Torr. Bot. Cl. xxxiv. 148 (1907), not *Conv. trichosanthes* Michx., basonym. *Breweria patens* (Desr.) Fernald in RHODORA, xlii. 298, pl. 624 (1940). PLATE 1121.

As already pointed out by the senior author in RHODORA, l. c. the type of *Convolvulus trichosanthes* Michx. Fl. Bor.-Am. i. 137 (1803), our PLATE 1123, FIG. 1, × ½, therefore of *Breweria trichosanthes* (Michx.) Small, as to basonym only, is the plant which has been erroneously passing as *B. aquatica*. As indicating this identity a characteristic piece of a modern specimen, × 1, (from Miami, Florida, *Curtiss*, no. 5855) and some enlarged details from other specimens, × 5, are shown as figs. 2–4). Michaux's description and preserved TYPE are unequivocal; but, unfortunately, his specific name is illegitimate, since he cited as exact synonyms the two earlier species of Walter (1788), "*C. humistratus* et *aquaticus*. WALT." It is, therefore, necessary to use a different binomial; and since Michaux so clearly described his plant and left so characteristic a type we are calling it

BREWERIA **Michauxii,** nom. nov. *Convolvulus trichosanthes* Michx. Fl. Bor.-Am. i. 137 (1803), nom. illegit.; Fernald in RHODORA, xlii. 298 (1940). ? *Stylisma elliptica* Raf. N. Fl. N. Am. pt. iv. 55 (1838), not *B. elliptica* Smith & Schubert in Contrib. Gray Herb. cxxvii. 31, pl. 2, figs. 31 and 32 (1939). *B. trichosanthes* (Michx.) Small, Fl. Se. U. S. 959 (1903), as to basonym only, not as to plant described. *Stylisma trichosanthes* (Michx.) House in Bull. Torr. Bot. Cl. xxxiv. 148 (1907), as to basonym only, not as to plant described. *B. aquatica* sensu most Am.

auth., not as to basonym, *Convolvulus aquaticus* Walt. PLATE 1123.

From the synonymy given by House in his study of *Stylisma*, Bull. Torr. Bot. Cl. xxxiv., especially p. 149 (1907), under *S. aquatica* in his sense, *i. e.* our *Breweria Michauxii*, one would infer that there are two names available for this species. The first, *Convolvulus erianthus* Willd. ex Spreng. Syst. i. 610 (1825), described "C. foliis linearibus elongatis basi attenuatis nudiusculis, . . . pedunculis elongatis 1 floris", etc. can hardly be our plant, which has the very pubescent elliptic-oval to oblong leaves broadly rounded to cordate at base and the peduncles mostly 3-flowered. Until the type of Willdenow's species can be studied it would be futile to guess what he had. House also cites as belonging to this species *Stylisma elliptica* Raf. "Fl. Tellur. **4:** 55. 1836". Obviously House did not closely inspect Rafinesque's account, for the species is not in Flora Telluriana (pt. 4 published in 1838) and p. 55 was occupied by generic and subgeneric segregates of Old World *Veronica*. In his New Fl. N. Am. pt. 4 (1838) Rafinesque described his *Stylisma elliptica* on p. 55. It is quite possible that Rafinesque had *B. Michauxii*, for his "leaves petiolate elliptical hardly pubescent, base subcordate, end obtuse mucronate" is rather definite for it (except "hardly pubescent") but "calix smooth" is not at all good for a closely pubescent calyx. This character and the "hardly pubescent" leaves immediately suggest *B. humistrata*. At any rate, the name cannot be taken over into *Breweria* because of the large-flowered Mexican *B. elliptica* Smith & Schubert (1939).

Now coming to the amazingly disjunct series known as *Breweria Pickeringii*, it is a somewhat striking fact that the TYPE and few extant specimens of the original *Convolvulus Pickeringii* Torr. in M. A. Curtis in Bost. Journ. Nat. Hist. i. 129 (1835) seem not to be matched by any other collection nor has anything conspecific with it been found in the type-area, the famous and much explored region of Wilmington, North Carolina. Both *B. angustifolia* (PLATE 1124) and true *B. aquatica* (PLATE 1121), misidentified as *B. Pickeringii*, have been collected farther up the valley of Cape Fear River; but Curtis stated that "Most of the species enumerated inhabit a circle around this place [Wilmington] of about two miles radius". In 1830 the population of

Wilmington was about 3000; now it is about twelve times that number, with a considerable summer increase, and its longest diameter is 5 miles. That may account for the lack of recent collections. Even the connection with the Wilmington plant (collected by Moses Ashley Curtis) of Dr. Charles Pickering is a bit obscure. The species, as *Convolvulus Pickeringii*, was published in the *Catalogue of Plants growing spontaneously around Wilmington, North Carolina*, from a manuscript received in September, 1834. In his introductory pages Mr. Curtis said (p. 86): "In preparing the Catalogue I have been kindly assisted by Dr. Torrey, whose name will at once ensure confidence in its general accuracy. To him have been communicated nearly all the doubtful and new species, and they have received numerous corrections and references." There is also acknowledgment of help from Dr. James F. McRee, but nothing about Pickering. On p. 105, under *Convolvulus*, there is an entry "Pickeringii. Tor. (26)", this indicating that Torrey was author of the name, and in the "Remarks on several Plants in the Catalogue" no. 26 (p. 129) is as follows:

> (26) *Convólvulus Pickeríngii.* Prostrate, villous; Leaves linear, 12–15 lines long, one line wide, obtuse, not mucronate; Peduncles longer than the leaves, 3 flowered; Flowers aggregate at the summit, two of them pedicelled in the axis of the leaves that exceed the flowers, with linear bracts at the base of the calyx which equal the flowers, the other sessile and without bracts. The upper peduncles become 2 and 1 flowered. Calyx very villous. Corol hairy, white; style 2 cleft a little below the summit, the parts unequal; Stigmas capitate. Hab. sandy barrens. Flowers June.
>
> Allied to C. patens, but clearly distinct. First noticed by Dr. Pickering, to whom it is dedicated.

The original material sent to Torrey had Curtis's comment: "Nearer C. trichosanthes, var. patens Ph. than Elliott's C. aquatica?". In the remark of Torrey (or perhaps Curtis) at the end of the description there is the clue to the origin of the specific name. Charles Pickering had collected the New Jersey variety six years earlier, the label (in his own hand) of his specimen in Herb. Phil. Acad. reading:

> (capsule one-seeded!)
> 4 miles from Quaker Bridge N. J.
> Aug. 1828. C. Pickering